CLAIMS

1. A method of discovering access points for distributed multiple-in-multiple-out (MIMO) communication, comprising: generating, by a first access point, a first message indicating the first access point has distributed MIMO capability, and further indicating an average or maximum spatial dimension usage of the first access point and a maximum number of spatial dimensions of the first access point; transmitting, by the first access point, the first message on a wireless network; receiving, by the first access point, a second message from a second access point, the second message identifying a cluster; and determining, by the first access point, to participate in the identified cluster in response to the second message.

2. The method of claim 1, further comprising generating, by the first access point, the first message to further indicate one or more of a supported distributed MIMO type, a supported bandwidth set, a number of spatial dimensions per supported bandwidth, an indication of whether full bandwidth or partial bandwidth operation is supported by the first access point for each bandwidth in the bandwidth set, a number of sounding dimensions, and guard intervals and long training field durations supported by the first access point.

3. The method of claim 1, wherein participating in the cluster comprises causing the second access point to join the cluster and further comprising generating, by the first access point, the first message to further indicate one or more of a distributed MIMO type of the cluster, a primary channel of the cluster, an operating bandwidth of the cluster, a cluster identifier for the cluster, an identifier of a leader access point for the cluster, and an identifier of a member access point of the cluster.

4. The method of claim 3, further comprising generating, by the first access point, the first message to further indicate one of a number of access points in the cluster, a number of stations in the cluster, and a cluster formation time.

5. The method of claim 3, further comprising generating, by the first access point, the first message to further indicate an average or maximum spatial dimension usage of the cluster and a maximum number of spatial dimensions of the cluster.

6. The method of claim 1, further comprising, generating, by the first access point, the first message to further indicate one or more of a primary channel of the first access point, and a target beacon transmission time.

7. The method of claim 1, further comprising transmitting the first message on an operating channel of the first access point.

8. The method of claim 1, further comprising transmitting the first message on a common channel.

9. The method of claim 1, further comprising receiving, by the first access point, a third message from a station, the third message indicating a primary channel for the second access point; and listening, by the first access point, for the second message from the second access point on the indicated primary channel.

10. The method of claim 1, wherein the second message indicates a primary channel for a third access point and further comprising tuning a receiver to the indicated primary channel in response to the second message.

11. The method of claim 1, wherein the second message from the second access point is received over a second network and further comprising turning a receiver to a primary channel of the second access point indicated in the second message.

12. The method of claim 1, wherein participating in the identified cluster comprises forming a new cluster with the second access point.

13. A method of discovering access points for distributed MIMO communication, comprising: receiving, by a first access point, a message indicating a second access point has distributed MIMO capability; decoding the message to identify a cluster and to determine a utilization of spatial dimensions of the identified cluster; determining, by the first access point, to participate in the identified cluster in a distributed MIMO communication; and joining, by the first access point, the identified cluster based on the utilization, wherein the identified cluster is a cluster of the second access point.

14. The method of claim 13, further comprising decoding the message to indicate that the second access point supports a distributed MIMO type comprising one or more of downlink coordinated beamforming, uplink coordinated beamforming, downlink joint MIMO, and uplink joint MIMO.

15. The method of claim 13, further comprising: determining a common discovery time window across the first and second access points; and listening for the message during the discovery time window, wherein the reception of the message occurs during the discovery time window.

16. The method of claim 13, further comprising: tuning a receiver of the first access point to a channel; listening, via the receiver, on the channel; and receiving, via the receiver, the message from the second access point on the channel.

17. The method of claim 13, wherein participating in the cluster comprises forming a new cluster with the second access point.

18. The method of claim 13, further comprising: decoding, by the first access point, the message to determine that the identified cluster is a cluster of the second access point; and joining, by the first access point, the identified cluster.

19. The method of claim 13, further comprising: comparing, by the first access point, capabilities of a cluster of the second access point identified in the message with capabilities of the first access point, and joining, by the first access point, the identified cluster based on the comparison.

20. The method of claim 13, further comprising: decoding the message to determine one or more third access points within a cluster of the second access point; and determining whether the first access point is within a wireless network reception and transmission range of the one or more third access points; wherein the determination of whether to participate in the cluster of the second access point is further based on whether the first access point is within the wireless network reception and transmission range.

21. The method of claim 13, further comprising modifying one or more of a primary operating channel and an operating bandwidth of the first access point in response to a determination to participate with the second access point in the cluster.

22. The method of claim 13, further comprising: participating in the identified cluster based on the decoded message, wherein the identified cluster is a cluster of the second access point.

23. The method of claim 13, further comprising negotiating with the second access point to determine whether the first access point or the second access point is a leader of the identified cluster.

24. The method of claim 13, further comprising modifying one or more of a primary operating channel and an operating bandwidth of the first access point in response to the participating.

25. The method of claim 13, further comprising: decoding the message to determine a formation time for a first cluster including the second access point; comparing the formation time of the first cluster with a formation time of a second cluster of the first access point; and merging the first and second clusters based on the comparison.

26. The method of claim 13, further comprising: decoding the message to determine a number of stations or a number of third access points in a first cluster including the second access point; comparing the number of stations or third access points with corresponding numbers of a second cluster of the first access point; and merging the first and second clusters based on the comparison.

27. An apparatus for discovering access points for distributed MIMO communication, comprising: a hardware processor, configured to generate a first message indicating a first access point has distributed MIMO capability, and further indicating an average or maximum spatial dimension usage of the first access point and a maximum number of spatial dimensions of the first access point; a transmitter, configured to transmit the first message on a wireless network; and a receiver, configured to receive a second message from a second access point, the second message identifying a cluster, wherein the hardware processor is further configured to participate

in the identified cluster in response to the second message.

28. An apparatus for discovering access points for distributed MIMO communication, comprising: a receiver configured to receive, by a first access point, a message indicating a second access point has distributed MIMO capability; and a hardware processor configured to: decode the message to identify a cluster and to determine a utilization of spatial dimensions of the identified cluster, determine to participate in the identified cluster in a distributed MIMO communication; and joining, by the first access point, the identified cluster based on the utilization, wherein the identified cluster is a cluster of the second access point.